

Notes on the recollection and typification of *Impatiens williamsii* H.Hara (Balsaminaceae) – A little known endemic species of Nepal

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नेपाल में अल्पज्ञात स्थानिक प्रजाति इम्पेशिएंस विलियमसी एच. हारा (बालसामिनेसी) के पुनर्संग्रहण एवं प्ररूपण पर आलेख

नोर्बु शेर्पा, सरोज कु. कसजु, साजन सुबेदि एवं राजीब गोगोई

सारांश

66 वर्ष बाद पश्चिम नेपाल से इम्पेशिएंस विलियमसी एच. हारा (बालसामिनेसी) को पुनर्संग्रहित किया गया है | इसके सुगम पहचान के लिए इस प्रजाति के संरक्षण स्थिति के साथ-साथ विस्तृत वर्णन एवं जीवत सामग्रियों से रंगीन सचित्रों सहित व्याख्या प्रदान किया गया है | लेक्टोटाइप को यहाँ आई. विलियमसी के रूप में नामित किया गया है |

ABSTRACT

Impatiens williamsii H.Hara (Balsaminaceae) has been re-collected in West Nepal after 66 years. To facilitate its easy identification, detailed description and coloured illustrations from live materials are provided along with the conservation status of the species. Lectotype is also designated here for *I. williamsii*.

Keywords: Endemic, Himalaya, *Impatiens*, lectotype, Nepal, recollection.

INTRODUCTION

Impatiens williamsii H.Hara was first collected by O. Polunin, W.R. Sykes & L.H.J. Williams in the year 1952 from 10,000 ft (c. 3000 m) altitude in Western Nepal. They collected the species from four localities (Near Tarakot, Bheri River: E00841618, Between Jumla and Garjigoth: E00841615, Hurta, Nagdung Khola: E00841619 & KATH001248, Between Rohagaon and LuoKhola, Suli Gad: BM012556302 & E00841620) in the same expedition. The same collectors again collected the species in 1954 from one another locality (Maikot: E00841621). Although there were collections of the plant, the species did not have a name until Hiroshi Hara described it in 1972 based on a collection made by O. Polunin, W.R. Sykes & L.H.J. Williams in 1952. At KATH herbarium there is another collection by T.B.

Shrestha bearing no TBS-14129, KATH001249 labeled as *I. williamsii* H.Hara but the specimen is inadequately preserved to determine its correct identity.

Recently, two of the authors (S.K.K and S.S.) collected one species of *Impatiens* Riv. ex L. (Kasaju & Subedi 325, KATH) from Jiugaad area, Jumla District, Karnali Province of Nepal and sent the images for identification to one of the authors (RG) as he is working with the Himalayan *Impatiens*. RG & NS determined the species as *I. williamsii* H.Hara, a little known endemic species of Nepal. The species is known only by the description in the protologue and from type specimens, nothing much was known about it. S. Akiyama who is revising the genus *Impatiens* for Nepal, in her recent account (Akiyama, 2021) also mentioned that the species is based on its type collection, and same is the case in

annotated checklist of the flowering plants of Nepal at www.eflora.org (http://www.efloras.org/florataxon.aspx?flora_id=110&taxon_id=242423006). The species was almost in oblivion from 1954 since its second collection. Hence, Kasaju and Subedi's collection is the rediscovery of the species, and on the basis of this recent collection the species is presented here with coloured illustrations from fresh material for easy identification in wild along with a designation of lectotype as no holotype could be traced at BM.

TAXONOMY

Impatiens williamsii H.Hara, J. Jap. Bot. 47 (5): 142. 1972; Press & al., Annot. Check. Fl. Pl. Nepal: 24. 2000; Akiyama, Bull. Natl. Mus. Nat. Sci., Ser. B, 47(2). 94. 2021. (Fig. 1 & 2)

Type: NEPAL. Between Jumla and Garjigoth, 10000ft, 8.8.1952, *Polunin, Sykes & Williams* 5041 (lectotype designated here: E00841615 image!).

Annual, much branched semi-succulent herb, 10–60 cm high. Stem erect, terete, densely pilose. Leaves distributed uniformly throughout stem, alternate, petiolate (upper leaves sessile), petiole (0.5–)1.5–3.5 cm long, extra floral nectary at the base, gibbose; leaf blade elliptic to oblong, 3–12 cm long, 1.5–6 cm wide; cuneate at base, acuminate at apex, serrate at margins; veins 5–11 pairs; pilose. Inflorescence axillary, 2–6 cm long, 1–3-flowered simple raceme, peduncle 0.5–2.5 cm long, pilose; flower bud ovoid, with prominent dorsal ridge, pilose; pedicel 0.5–2 cm long, pilose, bract midway along the pedicel, linear-lanceolate, 0.2–0.5 cm long, green, persistent, pilose. Flowers yellow or purple, or yellow blotched with dark purple markings, 2.5–3 cm long, 1.5–2.5 cm wide; lateral sepals 2, ovate to broadly oblong, 0.4–0.7 cm long, 0.3–0.5 cm wide, cuspidate at apex, membranous; midvein prominent, pilose; lower sepal cymbiform, 1.0–1.5 cm long, 0.5–0.8 cm deep, glabrous, mouth tip apiculate; spur absent; dorsal petal purple or yellow blotched with purple, orbicular, 0.6–1 cm long and 0.7–1.2 cm wide (when flattened), retuse or mucronulate at apex, dorsally carinate, pilose; lateral united petals bilobed, clawed, 1.5–2 cm long, basal lobe oblong, 0.6–1 cm long and 0.3–0.5 cm wide, dark purple, obtuse at apex, auricle absent, distal lobe dolabriform, 0.8–1 cm long and 0.4–0.6 cm wide, yellow with purple blotches or plain dark purple, obtuse at apex. Stamens 0.5 cm long, anthers mucicose. Capsule linear, green, 2.5–3.5 cm long; seeds ovate, verrucose.

Phenology: Flowering and fruiting from June to August.

Distribution: The species is endemic to Nepal and mainly confined to Jumla District of Karnali Province.

Habitat: The species usually occurs in semi dry roadsides and in rather semi dry soil deposits above boulders/rocky surfaces along with *Malva cachemiriana* (Cambess.) Alef. and *Delphinium pyramidale* Royle at altitudes ranging from 2400 to 3200 m msl.

Conservation status: The species is confined to western Nepal with restricted population. The species was encountered with less than 100 individuals in two localities during the present collections. Presently to determine its actual status as per IUCN criteria, there are certain limitations of data in connection with the population of historical collection sites and further survey is needed to ascertain if any populations are there in nearby areas of present collections. Hence, the present status of the species is Data Deficient (DD) and it is imperative to recommend conservation measures by different agencies for protection of this species.

Specimens examined: NEPAL. Near Tarakot, Bheri River, 10500 ft, 10.7.1952, *Polunin, Sykes & Williams* 2416, (E00841618 image!); Hurta, Nagdung Khola, 8000 ft, 6.9.1952, *Polunin, Sykes & Williams* 3225, (E00841619 image!; KATH001248 image!); Between Rohagaon and LuoKhola, Suli Gad, 10000 ft, 15.9.1952, *Polunin, Sykes & Williams* 3407 (BM012556302 image!; E00841620 image!); Maikot, 8000 ft, 6.10.1954, *Polunin, Sykes & Williams* 4716 (E00841621 image!); Karnali Highway along Gothijyula-Nagma section approximately 20 kilometers from Gothijyula along a small creek in south facing slope, Jiugaad, Jumla District, Karnali Province, Nepal, 29° 26.134' N, 82° 05.270' E, 2940 m, 18.8.2021, *Kasaju & Subedi* 325 (KATH).

NOTE ON LECTOTYPIIFICATION

Hara (1972) in the protologue of *Impatiens williamsii* H. Hara cited the specimen: Between Jumla and Garjigoth, 10000 ft (*Polunin, Sykes & Williams*, no. 5041, Aug. 8, 1952) as the type in BM. Akiyama (2021) cited *Polunin, Sykes & Williams* 5041 at BM as the holotype. We have been informed from BM (Ranee Prakash, pers. comm.) that the collection *Polunin, Sykes & Williams* 5041 is not present at BM. However, a collection of *Polunin, Sykes & Williams* bearing the field no. 3407 is at BM (BM012556302 image!) collected from a different locality (between Rohagaon and Luo Khola, Suli Gad) and on a different date (15.9.1952) from that mentioned in the protologue. It bears a det. slip of H. Hara affixed in 1972. It is a paratype but definitely not the one mentioned as type in the protologue. As there is no collection of *Polunin, Sykes & Williams* 5041 at BM we have designated here a duplicate of the type (E00841615 image!) as the lectotype following Art. 9.12 of Shenzhen Code (Turland & al. 2018).



Fig. 1. Lectotype of *Impatiens williamsii* H. Hara (Polunin, Sykes & Williams 5041 E00841615) https://data.rbge.org.uk/search/herbarium/?specimen_num=862583&filename=E00841615.zip&cfg=zoom.cfg © Royal Botanic Garden Edinburgh (RBGE).

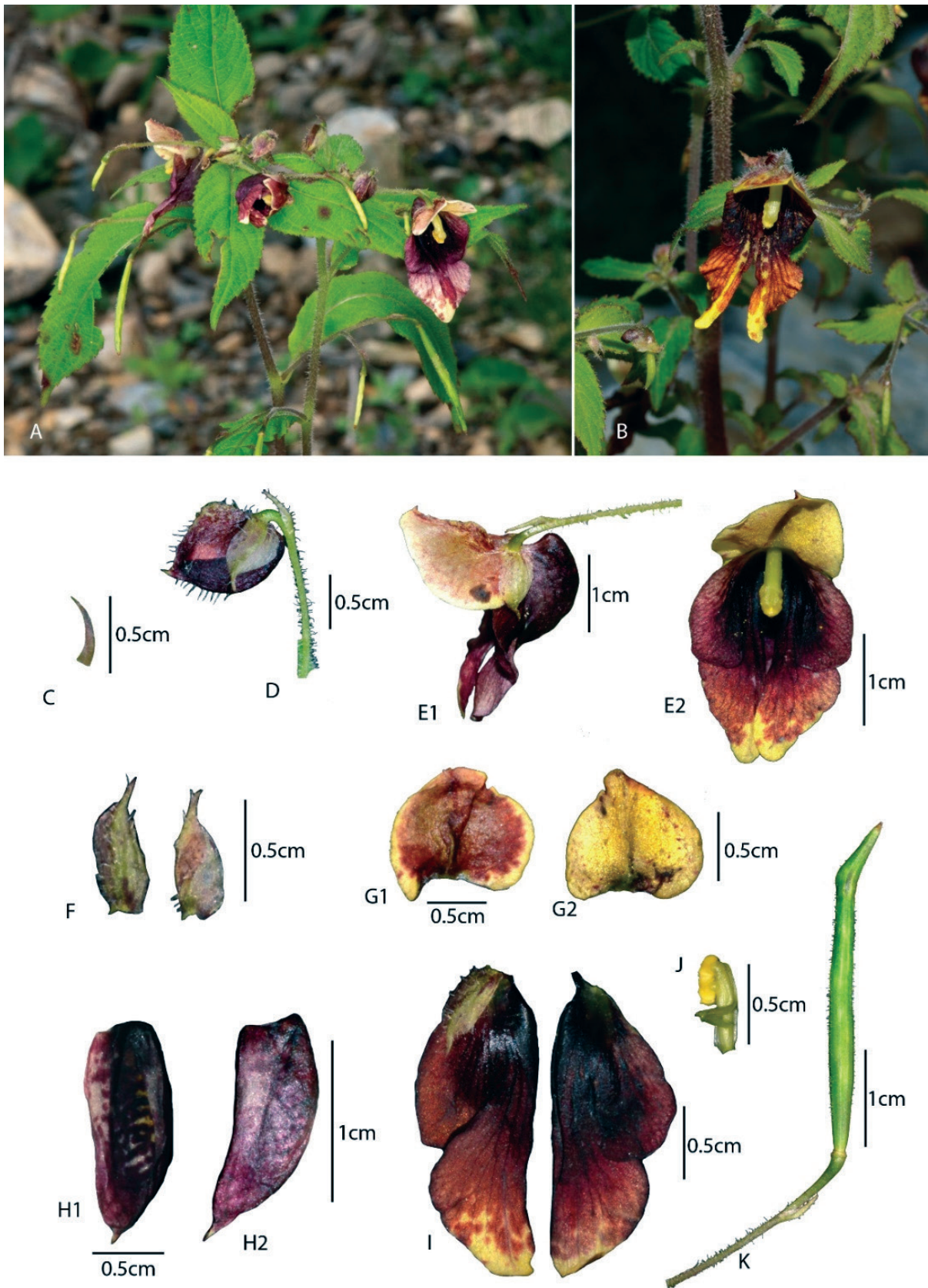


Fig. 2. *Impatiens williamsii* H.Hara – Floral features: A. twig of flowering plant, B. close view of flower, C. bract, D. Flower bud, E1. flower (lateral view), E2. flower (front view), F. lateral sepals, G1. dorsal petal (adaxial), G2. dorsal petal (abaxial), H1. lower sepal (front view), H2. lower sepal (lateral view), I. lateral united petals, J. stamens, K. capsule. Photos: © Sajjan Subedi (A) and © Saroj K. Kasaju (B–K).

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REFERENCES

- AKIYAMA, S. 2021. *Impatiens* (Balsaminaceae) of Nepal (1): An Identification Key and Taxonomy of the Species of Sections *Uniflorae*, *Fasciculatae* and *Axilliflorae*. *Bulletin of the National Museum of Nature and Science*, Series B (Botany) 47 (2): 79–101.
- ANONYMOUS, 2021. *Annotated Checklist of the Flowering Plants of Nepal*. http://www.efloras.org/florataxon.aspx?flora_id=110&taxon_id=242423006 (accessed on 7.12.2021).
- HARA, H. 1979. Balsaminaceae. In: Hara, H. & Williams, L. H. J. (Eds.) *An Enumeration of the Flowering Plants of Nepal*, Vol. 2. Trustees of British Museum (Natural History), London. pp. 78–80.
- TURLAND, N.J., J.H. WIERSEMA, F.R. BARRIE, W. GREUTER, D.L. HAWKSWORTH, P.S. HERENDEEN, S. KNAPP, W.-H. KUSBER., D.-Z. LI, K. MARHOLD, T.W. MAY, J. MCNEILL, A.M. MONRO, J. PRADO, M.J. PRICE AND G.F. SMITH. 2018. *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the nineteenth International Botanical Congress Shenzhen, China, July 2017*. Regnum Vegetabile 159. Glashütten: Koeltz Botanical Books. doi: 10.12705/Code.2018.